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Fall 10-1-2021

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Gaffar, Sk Abdul; N, Sindhu P. Mrs; and Kumar, S. Kishore Mr, "The Green Library Initiative in Indian perspective: A Study" (2021). *Library Philosophy and Practice (e-journal)*. 6189.

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The Green Library Initiative in Indian perspective: A Study

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Abstract

Purpose - The present study was to research instances of green library construction and recognition to raise awareness of green libraries for users. The researcher has explored, this paper highlights the role of a librarian, features of the green library, and initiatives of a green library in India.

Design/methodology/approach – Study have found there are some green libraries initiatives in India through the literature searches, case studies analysis and individual phone call during the research period. Some numbers of libraries have taken initiatives towards being green in India.

Findings – A green library minimizes the negative impact on the natural environment and enhances the quality of the indoor environment with careful selection of sites, use of natural building materials and organic products, conservation of resources (water, energy, paper), and responsible waste disposal, recycling, etc. The elements for designing green libraries, the criteria for greening the libraries, Standards of green library initiatives in India.

Originality/value – The Green Library is a long-term organization and it also produces our health and environment. The ways to go green to promote a strong green image to their stakeholders and users.

Keywords: *Green library, Sustainable library, Green building, LEED- India, Green library initiative in India, Green library standard*

1. Introduction

In 1990, the movement of green library started, because it works to maintain in every sector environment stability and security. The green library refers to library contributing for maintaining the natural environment, and saving the planet and its natural systems and resources. The green library has a lot of money (*Barnes, 2012*), including the preservation of natural resources for the future in a carbon-neutral way, and meeting the needs of the community. Over in the last few years, interest in green revelation is increasing in every sector and the library is one of them. The climate change issue became heavy on dependents specially people of around world (*Bhagat & Bhagat, 2019*). So, there is a lot of research for reducing the problem and development is underway, many scientists are working to work on various projects for those entire problem.

1.1 Definition of green library

There is no univocal definition of green library. But most of them have central themes which are managed by all of them, which want to reduce negativity and the building wants to increase the positive effects in the local environment (*Hellsten, 2002*). Green libraries want to reduce the use of water and energy by building design to increase the use of natural and renewable organization.

The consideration of humanity role in climate change and the sustainable development nation are core concerns of society, and consequently of libraries (*Varatharajan & Chandrashekara, 2007*).

According to the Online Dictionary for Library and Information Science, the Green Libraries are “designed to minimize negative impact on the natural environment and the maximize indoor environmental quality by means of careful site selection, the use of natural construction materials like nature and biodegradable products, conservation of resources (water, paper, solar, and energy), and responsible waste disposal (recycling, etc.)”

2. Objectives of green library

- i. To submit the best green library that communications the commitment of the library to environmental sustainability
- ii. All types of libraries are encouraged to participate

- iii. To create awareness of library's social responsibility and leadership in environmental education,
- iv. Worldwide green library movement support
- v. Environmentally sustainable buildings
- vi. Environmentally sustainable information resources and programming
- vii. Conserving resources and energy
- viii. Locally and globally for the development of green library ventures
- ix. Encourage green libraries to actively present their activities to international audience

3. Elements for designing green libraries

Although the green library is related to overall the green building movement like it would be natural, the libraries have specific needs to raise some specific challenges.

To preserve them, books should be kept away from sunlight as well as moisture and temperature changes (Sornasundari & Sara, 2016). However, many people may the most enjoyable light to read the sunlight. The sunlight also effects a major role in green design, because it can be used to reduce reliance on artificial lighting. For a long time, the libraries needed to protect against harmful ultraviolet rays (Hong & Noh, 2014). In the last ten years, due to the new development of glass technology, the ability to collect the designer has given them more flexibility. Brown identifies the following green design elements, which can be incorporated into green libraries:

3.1 Community collaboration

Library is a heart in any institution or any university. it should be in a perfect locality such as away from the noise zone like club, auditorium, entertainment hall etc.to make patron concentrate on their study (Shah et al., 2015). Ensure community resources are used effectively and helps to maintain public support.

3.2 Daylight

All artificial light should be arranged in library, it will be saved electricity and students will study continuously without any lighting problem.

3.4 Green materials

Use renewable materials like woo, linoleum, bamboo, and cork etc.

3.5 Green roof

A green roof is a roof that is covered in whole plants, which reduces from storm water run-off and lowers cooling costs.

3.6 Natural ventilation

Ventilation should be keeps in every library in every room, direct sunlight will entire to the rooms through ventilation.

3.7 Green Power and renewable energy

All intuition should be arranged a solar energy plant, it will be saved money and save our planet.

4. Green Library

Green design is an integrated process that one aspect of a building's architecture makes its green architecture. Without the proper integration, the stability can occur from the first moment of the planning phase and money possible advantages of sustainable design are eliminated (Meher & Parabhoi, 2017). LEED this element group in five sections. Buildings can be designed in one section helps another division fulfill its goal. LEED promotes a whole building approach to the sustainability by recognizing performance in the following 5 key areas namely,

- Site location
- Water conservation
- Energy efficiency
- Building materials
- Indoor air quality and bonus category for innovation and design.

4.1 Site location

Before starting the building, a site must be chosen. The impact of this site will affect the environmental of the library. There are several guidelines for LEED to help with the site selection process. There are a number of questions to consider that will guide the site selection process, including any impact on the local environment, there will be decay, what can be done with storm water and it's already green? Also, the library should be located near other services related buildings in a densely populated area.

4.2 Water Conservation

The library has several ways to save water. Their number depends on the selection of the right site. If a site is properly selected, then irrigation can be used to capture rain water. Another technique is to use low flow capital, and waterless urinals.

4.3 Energy efficiency

Energy is generated by sources such as solar, air hydro (water). Generate energy by solar power convert sunlight into electricity. Wind the turbine is usually installed in a tower and suitable for rural or non-urban area LEED ratings system heavy weighted all grades. Power can be generated directly using it sunlight by planting solar system library building roof top use solar and the power of the air can be used inside the libraries and power can be stored.

4.4 Building materials

Used materials can improve a building construction by the durability of the library reduce the need for mechanical systems enhanced indoor environment quality. Primary responsibility the materials for the library are selected contribute little waste as possible. Use store locally available components transportation costs and fuel. Much modern which has arisen in building technology more eco-friendly and should be used new library building. There are many standards and protocols in India and make a green building outside of India recycling and using the environment durable material.

4.5 Indoor air quality

Along with the power disadvantage, the poor air quality and post-air conditioning building design has another side effect. Because most modern buildings are temperature-controlled, they are designed to be airtight. Ventilation deficiency can not only make the buildings cold, it can also trap dangerous toxic substances that can cause serious harm to the human respiratory system. The materials that make up the libraries with color and carpets contain bone mass, which produces ground level ozone after reacting with sunlight and nitrogen. Breathing in the atmosphere of humans is another toxic CO_2 . To improve air quality, the components of low VOC material are purchased and CO_2 monitors can be installed to ensure CO_2 monitors are in safe condition.

5. The role of green library

Librarians should always try to promote movement of green libraries using various online tools like social media and other tools. The green library is the most dynamic, it is also called eco- librarian because it needs to manage the budget to support it (George, 2013). The organizations these two are most important things—economics and ecology for making healthy and rich durable libraries. The librarians are essentially kept in mind. However, it is necessary to strengthen the role of the library in the social stability development. The green library should use more and more bamboo by replacing steel; reading room, children's reading room, story, novel, entertainment purpose books, maps, atlases, gazette, encyclopedias, new arrivals, newspaper, magazine and so on, the OPAC should be in ground floor of the library. They can encourage other librarians towards green library by discussion, seminar, and conferences.

5.1 Indian green building council (IGBC)

Indian Green Building Council was formed in 2001 by the Confederation of Indian Industry (CII). The council is located outside the CII Green Business Center, Hyderabad, which is India's first platinum rated green building (Bangar, 2018). IGBC is the country's premier organization for green building certification and collaboration services.

A green building is one which uses less water than a conventional building, optimizes energy efficiency, maintains natural resources, generates less waste and provide heal their spaces for occupants. IGBC is leading the green building movement of the country.

IGBC has been instrumental in mobilizing the green building movement in India (Patil, 2018). IGBC and USGBC continue their collaboration in advancing technology the uptake of green buildings in India. The LEED (India) projects registered after June 2014 would be certified by the Green Building Certification Institute (GBCI) (*Vaidya, 2018*).

5.2 Green library initiatives in India

Name of the Library	Location	Features
Karnataka University Library	Dharwad	a green space, student can sit under the trees, they can take books from the library for study.
Mumbai University Library	Mumbai	The library use wood as stack materials, large size of windows add for ventilation and penetration of sunlight in reading hall.

Anna Centenary Library	Chennai	The library is well equipping with modern technology and proper use light, air and wood. It is reputed green libraries in India which is gold rating by LEED.
Delhi University Library	Delhi	The building would be naturally cool and pleasant.
Calcutta University Library	Kolkata	All readings room is so large and vast open areas, and thick walls.
NIT Library	Silchar	The New Library Building under construction is designed according to LEED certification system for developing green libraries (Barak Valley).
Perma Karpo Library	Ladakh	Solar panels and green area surrounded by white lotus garden.

6. Some example of green library in India

Karnataka university library



Figure 1 students sitting in serene atmosphere surrounded by lush green and colorful flowers

Anna Centenary library

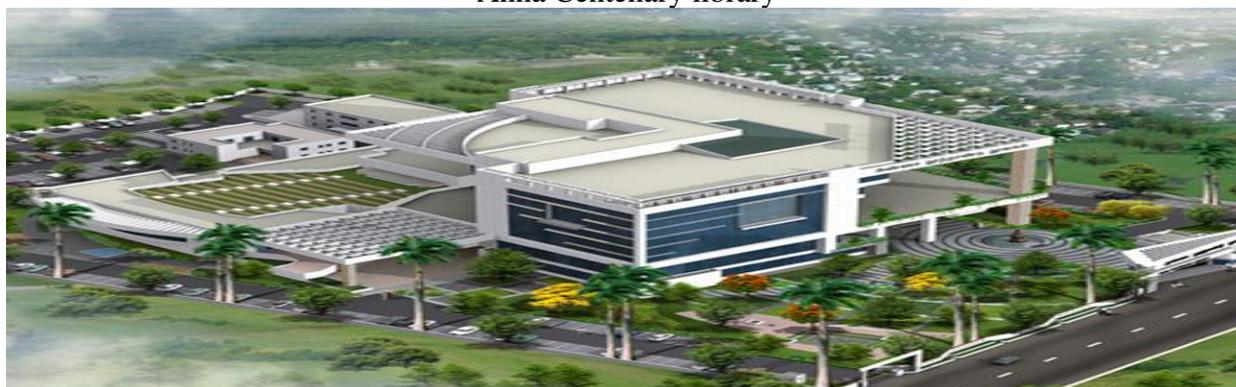


Figure 2 India's LEED Gold Anna Centenary library is the largest and greenest library in Asia

Perma Karpo library, Ladakh



Figure 3 Solar panels, green area, surrounded by white lotus garden

6. Suggestions and conclusions

Libraries can use a variety of tools to popularize the “green concept” and educate their patrons about the features of their green building. It includes in libraries related to library exhibitions, publications and relevant on ‘going green’. The University Grant Commission should order all colleges and universities to get approval to visit every green library. The steps should be taken to promote green libraries through government awards and financial support assistance for the maintenance of such this type of libraries. The library can arrange strategic thinking and planning sessions to ensure sustainability. Governments/universities should make every effort to convert libraries into green buildings/libraries wherever much possible.

There are always like books and budget problems of any institution’s library. The library having problems from dust, moisture, fungus, and it should require special care. The global warming has harmful effects, already felt with shockingly escalation greenhouse gas, glacier retreat, and changes weather during the seasonal events. The current important issue in the world is environmental problem that is to save and preserve the world earth’s life. The library can take good initiative to motivate people to work towards people protect the environment. The government should encourage the green library for making. Some of the Indian libraries trying to successful established green and librarians will have to take attend and participate in the green library movement.

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